# CAD Blocking Peptide – The purity is >90%,tested by HPLC and MS. Purity

## PRODUCT OVERVIEW

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| **Product Name** | CAD, Blocking Peptide |
| **Full Product Name** | CAD Blocking Peptide |
| **Product Gene Name** | CAD blocking peptide |
| **Product Synonym Names** | Aspartate carbamoyltransferase; Aspartate transcarbamylase; CAD protein; CAD trifunctional protein; Carbamoyl phosphate synthetase 2; CPSase ATCase DHOase; Dihydroorotase; Glutamine dependent carbamoyl phosphate synthase; Multifunctional protein CAD |
| **Form/Format** | Synthetic peptide was lyophilized with 100% acetonitrile and is supplied as a powder. Reconstitute with 0.1 ml DI water for a final concentration of 10 mg/ml. |
| **Purity/Purification** | The purity is >90%,tested by HPLC and MS. |
| **Preparation and Storage** | Maintain refrigerated at 2-8 degree C for up to 6 months. For long term storage store at -20 degree C. |
| **Antibody/Peptide Pairs** | CAD peptide (MBS9616705) is used for blocking the activity of CAD antibody (MBS9613423) |
| **Molecular Weight** | 242,984 Da |
| **Chromosome Location** | Chromosome: 2; NC_000002.11 (27440258..27466654). Location: 2p22-p21 |
| **OMIM** | 114010 |
| **Supply Chain Verification** | Manufactured in a lab with traceable raw materials manufactured on site. Coordinated product portfolio of antibodies, pairs, conjugates, recombinant proteins, and immunoassay materials available, please inquire. |
| **Notes** | For phospho antibody, we provide phospho peptide (0.5mg) and non-phospho peptide (0.5mg) |
| **ISO Certification** | Manufactured in an ISO 9001:2015 Certified Laboratory. |
| **Applications Tested/Suitable for CAD blocking peptide** | Blocking/Control |
| **Related Product Information for CAD blocking peptide** | Blocking peptides are peptides that bind specifically to the target antibody and block antibody binding. These peptide usually contains the epitope recognized by the antibody. Antibodies bound to the blocking peptide no longer bind to the epitope on the target protein. This mechanism is useful when non-specific binding is an issue, for example, in Western blotting (immunoblot) and immunohistochemistry (IHC). By comparing the staining from the blocked antibody versus the antibody alone, one can see which staining is specific; Specific binding will be absent from the western blot or immunostaining performed with the neutralized antibody. |
| **Other Notes** | Small volumes of CAD blocking peptide vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply. |
| **Searchable Terms for CAD purchase** | MBS9616705 is a blocking peptide targeting CAD. |

## ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for CAD. It may not necessarily be applicable to this product.

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| **NCBI GI #** | 18105007 |
| **NCBI GeneID** | 790 |
| **NCBI Accession #** | NP_004332.2 |
| **UniProt Primary Accession #** | P27708 |

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| **UniProt Secondary Accession #** | Q6P0Q0; D6W552 |
| **UniProt Related Accession #** | P27708 |
| **GenBank Nucleotide #** | NM_004341.3 |
| **NCBI Official Full Name** | CAD protein |
| **NCBI Official Synonym Full Names** | carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase |
| **NCBI Official Symbol** | CAD |
| **UniProt Protein Name** | CAD protein |
| **Protein Family** | CAD protein |
| **UniProt Gene Name** | CAD |
| **UniProt Entry Name** | PYR1_HUMAN |
| **NCBI Protein Information** | CAD protein; CAD trifunctional protein; multifunctional protein CAD |
| **NCBI Summary for CAD** | The de novo synthesis of pyrimidine nucleotides is required for mammalian cells to proliferate. This gene encodes a trifunctional protein which is associated with the enzymatic activities of the first 3 enzymes in the 6-step pathway of pyrimidine biosynthesis: carbamoylphosphate synthetase (CPS II), aspartate transcarbamoylase, and dihydroorotase. This protein is regulated by the mitogen-activated protein kinase (MAPK) cascade, which indicates a direct link between activation of the MAPK cascade and de novo biosynthesis of pyrimidine nucleotides. [provided by RefSeq, Jul 2008] |
| **UniProt Comments for CAD** | CAD: a multifunctional enzyme that catalyzes four enzymatic activities of the pyrimidine pathway, including the rate-limiting first step. The four enzymatic activities involved in de novo pyrimidine synthesis are glutamine amidotransferase, carbamoyl-phosphate synthetase, aspartate transcarbamoylase, and dihydroorotase activities. Provides essential precursors for DNA synthesis. Required for the de novo synthesis of pyrimidine nucleotides and cell growth. Phosphorylation by p70S6K promotes CAD oligomerization, stimulating de novo synthesis of pyrimidines and progression through S phase in mammalian cells. Utilizes glutamine, bicarbonate, and aspartic acid to form a pyrimidine ring that is subsequently attached to ribose to generate a pyrimidine.<br><br>Protein type: EC 6.3.5.5; EC 2.1.3.2; Transferase; Ligase; Amino Acid Metabolism - alanine, aspartate and glutamate; EC 3.5.2.3; Hydrolase; Nucleotide Metabolism - pyrimidine<br><br>Chromosomal Location of Human Ortholog: 2p22-p21<br><br>Cellular Component: nucleoplasm; cell projection; protein complex; nuclear matrix; membrane; cell soma; plasma membrane; terminal button; nucleus; cytosol<br><br>Molecular Function: carbamoyl-phosphate synthase (ammonia) activity; identical protein binding; enzyme binding; zinc ion binding; carbamoyl-phosphate synthase (glutamine-hydrolyzing) activity; aspartate carbamoyltransferase activity; ATP binding; protein kinase activity; dihydroorotase activity<br><br>Biological Process: lactation; organ regeneration; arginine biosynthetic process; nucleobase, nucleoside and nucleotide metabolic process; protein amino acid autophosphorylation; heart development; UTP biosynthetic process; peptidyl-threonine phosphorylation; glutamine metabolic process; response to testosterone stimulus; female pregnancy; liver development; response to caffeine; 'de novo' pyrimidine base biosynthetic process; response to cortisol stimulus; pyrimidine base metabolic process; pyrimidine nucleoside biosynthetic process; glutamine catabolic process; drug metabolic process; urea cycle; response to amine stimulus<br><br>Disease: Congenital Disorder Of Glycosylation, Type Iz |
| **Research Articles on CAD** | **1.** preliminary X-ray diffraction analysis of the dihydroorotase domain of human CAD |
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